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[For the American Bee Journal.]

The Effect of Water on the Combs and the Life of the Bees.

Superficial observers of nature and her operations are very apt to form erroneous conclusions, mistaking effects for causes, and constructing hypotheses which, when compared with the facts on which they purport to be based, do not even represent the shadow of the substance in question. Similar consequences flow from the misconceptions of those who, in utter unacquaintance with the wonderful operations of natural forces, as well as with the results of those processes, venture to speculate on phenomena which casually come under their observation. We do not propose to censure the failure of the latter; they have simply not been taught to observe. But the former, while impelled by a desire for knowledge, reflecting on the subjects which they design to elucidate, deduce incorrect and ofttimes ridiculous inferences from their premises, simply because they happen to be ignorant of the requisite auxiliary branches of science.

Such and similar remarks are we frequently constrained to make in the various departments in which technical operations impinge on natural processes, or rather where they seem to be sustained by ascertained particular facts in natural science. An attentive perusal of the various periodicals devoted to specialities frequently presents this truth, and renders it manifest that if practical interests are to be successfully advanced, the processes employed must be brought into operative harmony with the principles which science has demonstrated to be true and applicable.

We read lately at a friend's house, the excellent AMERICAN BEE JOURNAL, published in Washington, and found therein many very valuable articles; but among them likewise some which, whether for the first or the second of the reasons indicated above, present views not precisely in accordance with, or not held in due subordination to, the scientific principles of force in the premises. From this consideration, and because a translation of our articles on foulbrood, communicated to the Hanover Centralbatt, appeared in the JOURNAL in the autumn of 1868, we resolved, if its columns were open to our discussions in the field of apistics, to endeavor to aid in bringing the views of bee-keepers on apistical questions in accord with the principles of modern science, in a country which has long been the chosen home of two of our children—availing ourselves also of the opportunity to elucidate more fully, or render more easily intelligible, the articles on foulbrood to which we have just referred.

In support of the position assumed at the outset, it will only be necessary for us to advert to what has appeared in some of the principal apicultural and other journals of Germany. Thus, a certain Dr. Landois had heard that worker bees possess the power to raise queens from worker eggs. Basing himself on this conceded fact, he unblushingly declared in the Journal for Scientific Zoology, that it is in power of the beekeeper, by regulating the quantity of food administered by him, to raise queens, workers, or drones at pleasure. And later, sanitary-counsellor Dr. Preuss maintained in the Bienenzeitung, that foulbrood is the product of a fungus, by him named "*cryptococcus alvearis;*" though Liebig and other eminent chemists and naturalists had previously shown that fungi and infusoria are the products of incipient putrefaction. Indeed Dr. Preuss mixes up the putrefactive and the fermentive processes strangely, in his article; citing them now as appearing in due order, and again as occurring wholly out of place. He contends in general that fermentation is a consequence of the formation of vegetable tissues; though it has long since been demonstrated by Liebig, Döpping, Struve, and Karsten, that sugar, for example, may, by decomposition, be resolved into alcohol and carbonic acid, without exhibiting in the process the slightest indication of the presence of fermentive fungi. The most eminent chemists and physiologists have shown conclusively that the putrifying substance is the generator of fermentation, and when brought into contact with fermentable matter in certain states of temperature, in the presence of moisture, will superinduce the

fermentive process. Dr. Preuss, on the other hand, contends that the fungus, which he claims to have discovered in the putrid larvæ, was the cause of putrefaction in them. Others, again, having seen that, at certain seasons, bees carry water into their hives, and relying on the representations of previous observers, speak, especially in the Bienenzeitung for 1868, of "water dearth" among bees—just as though they were speaking of a human being, languishing with parched tongue for a drop of water to quench his thirst. Bees know not thirst. They carry in water simply to dissolve crystalized honey, to enable them properly to concoct the aliment required by the brood. This portion of their labor might more appropriately be designated as providing the means of solution. There are others, also, who speak of "dysentery" among bees, as though it were something that might be regarded as a diseased condition of their organism, such as occurs at times in the intestinal canal of human subjects; and they have even advised recourse to, and have themselves employed, the remedies deemed efficacious in the latter case. These, however, leave out of view altogether the fact that bees must, within a certain limited period of time, be able to discharge their fæces; and if the proper opportunity to do this is not presented, the alvine viscera become gorged. Bees are then constrained to make their evacuations when and where they can, oft of necessity polluting their combs and the interior of their hives. This condition is, no doubt a fearful one to the suffering insects; but is not in reality a disease. As soon as the weather permits the bees to fly, the whole difficulty is removed.

We might greatly enlarge this catalogue of transgressions against science, if disposed to pursue the registration. But we should probably be thereby tempted to engage in discussions, which might not indeed be of disservice to the cause, though they should lead us too far away from our present purpose. From these and similar incongruous notions and doctrines, we shall therefore only select that which from its nature seems to bear a close relationship to what has been called "water dearth." We take occasion accordingly to speak somewhat in detail, of *the effect of water on the combs and the life of the bees.*

What is called water dearth among bees is a subject which, as we have already stated, has been repeatedly and exhaustively discussed—the singular notion of its occasional existence having sprung from the fact that, in the spring, bees are frequently seen sipping water at pools and ditches, and conveying it into their hives. Misled by this fact and the queer fancies which it seems to have engendered, bee-keepers have been induced to institute various, experiments, which, if viewed in the light of their possible consequences, might well be regarded as designed to work the utter destruction and ruin of bee-culture. No doubt this is a strong expression; but it is nevertheless true. We have often read in various bee journals, that practical bee-keepers, when they saw that their bees were getting restless in the spring, conceiving they were suffering from the supposititious water dearth, poured water in the combs, and remarked triumphantly that after such operation the bees became quiet. The poor dear creatures! Think of a man confined in a circumscribed space and gasping for fresh air;* and now, instead of being blessed with what he sighs for, a bucketful of cold water is dashed, not indeed in his face, but in his narrow house, and judge how the poor disappointed sufferer would feel!

If it be asked, do not the bees need water? we must say in reply, they do. Honey, for instance, if it remain long undisturbed in the cells, becomes partially candied, the grape sugar it contains alone remaining liquid. The crystals being of so compact and solid a nature, the bees are unable to consume them in that form, or prepare from them the jelly with which, in an *undigested* state, the larvæ of the workers and drones are supplied in their last stage prior to transformation, it is quite natural that they should be dissolved and made available, by means of water brought in from abroad. Hence it happens in the spring, so soon as bees have brood to nurse, and the honey from which the jelly is to be prepared is partially crystalized, water is in demand and some of the workers are seen carrying it in. It is wise, therefore, at this season, to supply them in convenient places with pure rain or river water in a shallow pan or dish, placing in it a piece of sponge, or moss, or some chips, to save the bees from drowning. Well water, if used for this purpose, should be previously boiled and allowed to settle, to free it of mineral salts that might prove injurious.

Bees never carry more water in their hives than suffices for their immediate wants. No bee-keeper ever found that they store up any in the cells for future use. The reason of this is obvious. Permanent dampness or moisture in a hive is invariably followed by the destruction of the colony. Hence the instinctive antipathy to it so unmistakably manifested by the bees everywhere in the various functions of their life. This assertion may seem to require some further elucidation. There are *two points* which, on close inspection of the combs of a hive and the substances therein deposited, supply us with the tangible evidence why bees are so solicitous to exclude water and all dampness from their dwellings; and observant bee-keepers will not have failed to see how sedulously they endeavor to rid their hives of all superfluous moisture therein condensed or collected, so soon as the temperature of the atmosphere will permit them to do so. Every drop of water is then removed, as quickly as it makes its appearance.

As warm-blooded creatures receive with their nutriment two substances producing very different effects on their organism, so likewise the bees. They receive with the honey, a non-nitrogenous substance (C 12 H 12 O 12xH O), the combustible material, which combining with the oxygen inhaled through their stigmata,

*That bees require a constant supply of pure fresh air in their hives, for purposes of respiration and digestion, will readily be conceded in view of the large amount of vapor, carbonic and formic acid generated therein—the natural product of respiration and digestion. With the editor's permission we may hereafter treat of this topic more fully in these columns.

forms carbonic acid and hydrogen. Where this chemical combination of elements takes p'ace, caloric is liberated. As this combination proceeds in the body of the bee, the inhaled oxygen uniting with the nitrogen and carbon of the nutriment consumed forming aqueous vapour and carbonic acid, it is obvious that the bee developes and possesses animal heat equivalent to a temperature 52° or 55° F., whereby the activity of its organs is maintained and their vital functions supported.

With pollen, on the other hand, they receive a plastic nutriment, supplying nitrogen and sulphur (phosphorus), of which we may remark, in passing, their bodies are composed. It supplies the ferment by the agency of which wax is elaborated from honey. It is the medium by which the wasted powers of the bee are recuperated, and by which the nervous and muscular system is supplied with the perduring vigor and toughness, which we so admire in our winged favorites. Mature bees consume but little of this substance—only as much as suffices for the purposes here indicated; whereas to the brood is administered so much, in the jelly allotted to it, as is required for the constitution of the bee's body and the construction of the cocoon in which it is destined to undergo its final transformation.

Everybody is familiar with those properties of nitrogenous and sulphurous substances which render them peculiarly susceptible of putrefaction when exposed to the action of the oxygen of the atmosphere, to moisture and a certain degree of heat. That such is the case also with the nitrogenous pollen stored in the cells by the bees, scarcely needs to be remarked, after what has already been said; yet, to obtain satisfactory evidence of the fact, let us institute the following experiment:

Take out of a comb about one-quarter of an ounce of pollen, and triturate it between the fingers; then put it in a phial and pour on it as much water as will cover it about half an inch. Set the open phial ten days or two weeks in a place the temperature of which ranges from 62° to 65° F. Should much of the water evaporate, replace it gradually. If the contents be carefully observed during the time mentioned, it will be seen that when decomposition has commenced, minute air bubbles will be formed and rise to the surface; and the whole mass will ultimately become agitated. That larvæ fed with putrescent pollen must perish, will be evident when we consider how very destructive every other putrescent substance proves to be when brought in contact with organic substances in the conditions already stated. Putrid meat, putrid medullary matter, or putrescent blood placed on a wound, produces vomiting, debility, and finally death. (See *Magendie's* experiments).

The reader will now readily understand why bees, instinctively conscious of the dangerous influence which water, or even mere dampness, is capable of exerting on their nitrogenous nutriment, are so exceedingly solicitous to keep the interior of their hives as dry as possible. Yet a large proportion of beekeepers, besides furnishing their bees with hives saturated with or not readily absorbing moisture, do all they can to keep the combs damp likewise. We seem to hear some of those thus impugned, angrily exclaim:—"Nonsense! We give our bees a suitable well-constructed wooden hive, and it is folly to talk of damp combs in them! The writer is overdoing matters!" In place of all replication we pray these worthy friends to examine the interior of their wooden hives in October or November; and again in February, March, or April, to satisfy themselves how plentifully vapor has been condensed in them, how moisture pervades the whole, and specially how dampness has affected the combs.

In such circumstances, indeed, it is quite natural that the inner walls should be covered with condensed moisture and drops of water, resulting from external cold, whenever the bees are no longer able to remove it as fast as it is formed. And then, as the quantity condensed increases, it will form on the combs also, and trickle down from cell to cell, and entering these will speedily dampen the pollen they contain; which, in turn, operated on by the increasing warmth of spring, begins to undergo putrefactive decomposition, ultimately proving destructive to the larvæ fed with jelly prepared from it. No kind of timber, generally available for hives, is porous enough to absorb all the moisture at times generated by the bees therein domiciled; and there seems to be no alternative but to seek some other material better adapted to the purpose desired.

In another point of view, also the moisture condensed in wooden hives, will sooner or later inevitably result in the ruin of the colony exposed to it.

Every larva—whether worker, drone, or queen—before undergoing its final transformation, envelopes itself more or less perfectly in a cocoon spun by itself; and we may properly inquire of what substance the filaments of that tissue are composed. As already intimated, it is derived from the pollen consumed by the larva. To demonstrate this fact, is our next task. The experienced beekeeper doubtless knows that, when pressing out wax, a dark mass is left in the sack. This is composed of the cocoons or nymphal envelopes remaining in the cells after the brood has emerged. Let him take an ounce of this, place it in a retort with a small quantity of water in the condenser. Now heat the retort, taking care to exclude atmospheric air. The tissues will be burned, leaving in the retort a portion of carbon and the mineral substances combined therewith. The other substances, assuming a gaseous form, passed over into the condenser, and either occupy the space over the water, or have been absorbed by the latter. Among these is the nitrogen. This, when liberated from the tissues, immediately combined with the hydrogen, which was liberated at the same time, forming ammonia. This latter substance, with which alone we are here concerned, is absorbed by the water in the condenser, and its presence there may be shown in the following manner: Heat, in a capsule, a small portion of the water taken from the condenser; add thereto a little caustic lime; and the ammonia evolved will be detected by

the pungent odor diffused. Since honey (H12 C12 O12—2 H O) contains no nitrogen, it is manifest that the substances forming the tissue of the cocoon enveloping the embryo, must have been derived from the nitrogenous pollen consumed by the larvæ.

It is thus demonstrable that the cocoon tissues remaining in the brood cells contain nitrogen and sulphur; that these absorb water like a sponge; and when this happens they become coated with mould and finally undergo decomposition. The honey gathered and stored in the cells, begins to ferment, and in this state furnishes the most fitting material for generating foulbrood.

Now conceive of *any form* whatever *of wooden hive*, tenanted by bees, in which they consume their food, and in which consequently a proportionably great quantum of aqueous vapor is generated and condensed against the sides, just as we see it in spring and fall on the window glass of our dwellings, and it may well be contended that the moisture, (which must eventually be generated in any *wooden hive*,) with its resulting evils, is more and more certainly detrimental to bees than any other malign influence to which they are liable to be exposed.

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Having thus, as we conceive, shown conclusively the effect which water has on the combs and the life of the bees, we have only to add that this dangerous malady—foulbrood—finds its source naturally in the circumstances to which we have traced it. If namely, pollen becomes putrefied by the conjoint operation of the oxygen of the atmosphere, water and heat, then the cause of foulbrood is obviously discovered. Precisely because wooden hives are now more commonly used than formerly, and the condensation of moisture is thus of more frequent occurrence and more abundant, complaints of the prevalence and diffusion of this malady, are far more numerous than they formerly were, when straw hives were in almost general use.

That the cause of foulbrood must properly be sought for in pollen made putrescent by moisture, will be clearly established by the following experiment: Take a fourth of an ounce of pollen, and triturate it between the fingers; place it in an open phial and keep it constantly moist with lukewarm water, exposing it for eight or ten days to a temperature of 62° to 65° F. The mass will then, if the moistening has not been neglected, have fully undergone decomposition. Having satisfied yourself of this, take half a pound of honey warmed to liquidity, pour the decomposed pollen in it, and mix the whole thoroughly by shaking or stirring. Let it now stand eight or ten days longer, in a temperature of from 65° to 70° F., and then feed a healthy colony with this fermenting substance —taking care to do the feeding in a close chamber, to prevent other bees from participating. *The brood in this colony will, within a week, be dead and putrid.*

The attentive reader will thus understand that the pollen decomposed by the action of moisture and heat, caused the honey to undergo a chemical change. In other words, the putrescent pollen was the leaven by which the fermentable honey with which it came in contact was brought into a state of fermentation; and being then fed, *undigested*, by the nursing bees to the larvæ of workers and drones, just previous to their last transformation, carried the fermenting process over into their delicate organism — causing putrefaction and death. The contagious matter of this disastrous malady, as is well known, speedily becomes diffused far and wide, carrying with it the destruction of bee-culture in all its range. It is hence specially important that we acquaint ourselves with its nature and mode of diffusion, that we may be the better able to preserve our colonies from it or cure them when attacked.

In organic bodies we clearly distinguish two different classes of substances. One of these, under the influence of the oxygen of the atmosphere, in certain conditions of temperature and moisture, is susceptible of decomposition. Prominent among these are all bodies rich in nitrogen and sulphur (phosphorus). The others do not undergo decomposition so long as they are kept pure and unmixed. To these belong non-nitrogenous substances (starch, sugar, fats, &c.) To the first-class belongs the pollen gathered by bees; to the second class belong honey and the wax produced therefrom. When a nitrogenous substance undergoes decomposition, its constituent elements possess the peculiar property of *communicating the putrefactive process* to any non-nitrogenous substances with which they are brought in contact, and thus become the occasion of the separation of the elements of which organic substances are composed and enable them to enter into other combinations. This phenomenon may be distinctly observed by placing some sound organic substance in close contact with a rotten apple or other decaying fruit. In a short time it will be acted on by the atoms of the putrescent body; and the infection will in consequence speedily spread more and more, in concentric-circles, until it whelms the whole in one common abysm of decomposition and destruction. If now such putrescent substance be suddenly dried, decomposition is at once arrested and ceases; but immediately recommences and proceeds, when again permeated by moisture and heat.

Having, in the foregoing, given a somewhat minute account of the nature of the putrefactive process, it will readily be understood that so soon as the larva, prior to its final metamorphosis, partakes of the *undigested* jelly, composed of putrescent pollen and honey, the fermentive process will be communicated to its body, which, infected thereby, at once passes into a state of decomposition. So long as the colony continues populous, the extraordinary internal heat of the hive dries up successively the putrid larval remains; but minute motes, such as we may see floating in the sunbeams in a darkened chamber, become detached and float about in the atmosphere of the hive as well as in that of the apiary, and are spread abroad by every current of air. They are thus carried to and enter other hives, and may finally reach even distant apiaries. They find a lodgment in the pollen, the honey, and the cells of the hives they enter, infecting the contents, and communicating the

process of decomposition. The nursing bees in such infected colonies feed the brood with contaminated jelly, and foulbrood soon manifests its presence.

We find phenomena precisely similar elsewhere in the economy of nature—two of which may serve to illustrate the view we have presented.

In human dwellings near which marshes or ponds exist that become dried up by the heat of summer, epidemic diseases, fevers, &c., occur. These are usually thus accounted for. Those marshes are the arena where myriads of infi-tessimally minute animalculæ abound. The evaporation of the water and drying up of the marshes, deprive these creatures of their vital element. They perish; the oxygen of the air acts on their remains, dissolving their organic combination; and then their liberated constituent elements enter into new combinations—the sulphur, for example, uniting with the hydrogen, forms sulphuretted hydrogen. The extreme heat of summer soon dries up these putrescent organic substances; myriads of minute atoms quickly become detached therefrom and are carried by the air into all the region around. They are thus inhaled by the inhabitants, adhere to the internal tissues of the body, and there finding the requisite conditions of heat and moisture, become putrescent again, and communicate the putrefactive process to the organs they infest. Disease is the result—the person afflicted grows sick.

Morbid matter from a corpse, conveyed into an open wound, decomposes the blood, and finally causes death.

Having thus shown that the atoms of dessicated larval remains, floating in the atmosphere, are able to superinduce the decomposition of pollen and honey in the cells of neighboring hives, and thus become the means of gradually diffusing the malady further and further, though the disease itself is originally caused by the moisture condensed in wooden hives, the importance of discontinuing the use of whatever contributes to or aids in the condensation of moisture, is at once obvious.

That foulbrood can be caused by feeding the bees of colonies containing brood, with contaminated or fermenting honey is likewise evident from the preceding statements; and under this conviction we content ourselves with remarking further that the minutest particle of putrescent nitrogenous matter mingled with the honey, suffices to render foulbroody the larvæ to which it is fed.

What has thus been advanced in these latter passages may be summarily presented in the following propositions: 1. Foulbrood may originate from putrescent pollen; 2, from contagion and infection; and, 3, from feeding fermenting honey. The honey brought to us from trans-atlantic countries, is mostly expressed from combs still containing both larvæ and pollen; these, exposed to heat during transportation, naturally become putrescent, causing the honey to ferment, and producing foulbrood in the larvæ to which it is fed.

AUGUST LAMBRECHT.

BORNUM, NEAR WOLFENBUTTEL. Jan. 1869.

[For the American Bee Journal.]

Mishap in Wintering Bees.

As I have extolled the wintering of bees in the ground, I feel it my duty to confess the check I encountered this winter.

The first fortnight of September was very profitable to the bees. Many of my strong stocks gathered twenty-five pounds of honey each, in three days. On the 16th of the month the frost killed all the flowers; and from that time, the weather being cold and rainy, the queens ceased laying. I had then several young queens, to replace the tested queens I had sold and the black impregnated queens I had removed from my hives and destroyed; but I could not induce many of these young queens to lay. Thus the time for putting the hives in winter quarters was at hand, before I could ascertain whether they were impregnated or not.

In these circumstances I reinforced twelve nuclei with bees and honey; designing to keep them through the winter, that I might have, in the spring, some fertile queens on hand, to replace drone-laying queens; for I felt pretty sure that I had many an unimpregnated queen in my hives.

My bees were buried in November, before the hard frosts set in. The month of January and the first half of February were unusually warm and wet. I was far from being easy as to my colonies, as I suspected that they were suffering from dampness. I had concluded to take them up before the end of February; but the last fortnight of that month and all of March were so cold that I could not dig them up before the 30th of March. I found all my *ruchees* in a piteous condition. One-fourth of them had perished, with plenty of honey in the hives; and all had more or less dead bees. The strongest stocks had survived; but amongst the weaker, in whose hives the honey was much scattered, the bees, after consuming the stores immediately within their reach, were prevented by mouldiness from passing to the other parts of the hive, and thus perished though there was plenty of honey close by.

But this is not all. On the very day that the hives were replaced on their summer stands, I had the mortification to see the bees of several desert them *en masse*, though the hives were in good order and stored with honey. Eight colonies played me that sad trick. The bees entered some of the other hives; but as for the queens, they were lost, although I had hived several of them, with as many workers as possible.

I suppose these queens were unimpregnated, and issued in quest of drones, and the workers, having no brood to care for, followed them. I think I may safely say that not one bee left my bee-yard—all entered some of the other hives. Thus, from want of brood in the hives, I was unable to ascertain whether fertilization could be effected in any case, after so long a delay as from autumn to spring. I am left poorer, by a full third in the number of *ruchees*, but enriched with plenty of mouldy combs.

Now, from what cause came this reverse? Did it come, as we are told by friend Gallup, from the great age of my bees? Certainly not. For, having bartered some Italian stocks for black bees, I replaced the queens in August, and the laying of the young queens was insignificant before winter. Fourteen (14) of these *ruchees* are alive; yet they had only old bees. I think the mishap must be attributed to some other cause. The honey gathered on the 13th, 14th, and 15th of September was not duly evaporated before the cold weather set in. Consequently, it remained uncapped, and the warm weather maintained it in a watery condition. The dampness and the relative heat of the trenches rendered the bees uneasy; they ate more than usual, and perished either by dysentery, or by the mould which invaded the combs.

Neither did the bees winter well in cellars this year, as the combs grew mouldy. It has been noticed that a cellar is always damp in summer, and dry in a cold winter. This explains the great mortality of bees, from dysentery, in cellars this mild winter.

Is there any way to prevent such dampness? Yes, there is an easy and cheap one. Procure some waste bittern from salt works. That substance has great power for absorbing moisture; and it costs nothing, as the salt manufacturers have no use for it. Dry it in an iron kettle, and put some of it in an earthen pan, in the bottom of which one or two small holes have been bored. Place another pan below the first to receive the drippings from the upper, when the bittern becomes liquified by the absorption of moisture. When all is dissolved, pour the liquid in the kettle again; evaporate to dryness, and then replace it in the pierced earthern pan. This may be repeated twenty-five or thirty times.

This process was invented by Prof. Bubreuil, of Paris, to keep fruit houses dry; and a patent was taken for it for that purpose. I have tried it myself while in France, and found it works well. It could be used for every stock by placing the pans under the cap of the hive. The pans for this use should be made to contain about a quart; and for a cellar, there might be several large enough to contain a gallon each.

If the salt and queensware works would advertise these products in the BEE JOURNAL, I am quite confident they would have a good demand for these articles, as soon as their use would become widely known.

CH. DADANT,

HAMILTON, ILL.

Millipedes, or wood lice, are a most destructive enemy to bees. They sometimes proceed from the stands being made of old decayed wood, in which the wood lice lay their eggs, and thus breed under the very hive. Entering the hive, they breed in the combs.

The color of the honey depends on the color of the juices which the bees collect it.

[For the American Bee Journal]

The Italian Bee.

Mr. W. Hewson, of Kent, England, wishes Gallup to try his hand on his questions. The real superiority of the Italian bees consists (especially in this new country, where our honey is mostly gathered from wild flowers,) in their great industry in gathering forage and raising brood, in seasons when the black bees do comparatively nothing. The queens are more prolific. The bees swarm more frequently, if left to themselves; and they are almost perfectly moth-proof. Instead of running all over the hive when the miller is around in the evening, they cluster closely at the entrance, and seem to say:—"now come on; we are not going to run after you." They defend themselves from robbers much more effectually than the blacks. They can be handled very easily, without damage from stings, unless after cold weather sets in, in the fall, or after they are done breeding. At such periods I think they are fully as cross as the natives. But let them have a taint of black blood, and they are sometimes as cross as vengeance. You can sit down by a pure swarm for hours, when they are at work, and not a single bee will come buzzing about you. In fact, they mind their own business. On opening a hive to find the queen, or perform any other operation, the queen will not attempt to hide like a black queen; and the bees will stick to their regular business, if they are handled as they should be. The Italians are longer-lived than the blacks. Hence, if a swarm becomes queenless, they keep up their strength considerably longer than the blacks when in the same condition.

That red clover question I answered before in the BEE JOURNAL, but will do so again. I have seen two seasons, since I came west, that black bees worked freely on red clover; but usually, on our rich western soil, neither blacks nor Italians can do anything with it. On sandy land they probably could work on the blossom almost every season. I presume that last season they would have worked freely on it on account of the drouth shortening the cups that contain the nectar; but we had no clover here.

I prefer smoke from chips, rotten wood, or sawdust, to fumigate bees for handling; but use very little at any time—just sufficient to make them ask your pardon, if they show any crossness. I have a strong impression that tobacco smoke makes them irritable and cross, especially if used often, or by a novice. Bees properly handled with wood smoke, never appear to resent it afterwards, even if handled a dozen times a day.

I know of no way to prevent the accumulation of propolis, only to have your frame bearings quite small; and if your honey board fits just right, you will have very little trouble. I allow a trifle over a quarter of an inch between the honey board and frames; three-eighths of an inch between the frame and side of the hive; and half an inch between the bottom board and the bottom bar of the frame. The side pieces

of the frames are a trifle over one-eighth of an inch thick, and one inch wide. When thus made and adjusted, there is no fastening of the frames to the hive or honey board with pieces of comb.

Whether we hold ourselves indebted to Mr. Langstroth or not, we are certainly under obligations to him for his hive and book, and for his honorable manner of dealing with his customers generally.

To sum up the Italian bee question in a very few words—I would sooner have one Italian swarm than two natives, for real pleasure and profit. Since the May number of the BEE JOURNAL came to hand, I have received six letters on this same question, and five of them complain that the writers have purchased each an Italian swarm, and the bees are so cross that they dare not go near them. If they have not been badly handled and thus irritated, I should be strongly inclined to think that they are not pure, even if their markings are perfect. It must be understood, however, that when Italian bees are thoroughly aroused, they can and will sting with a vengeance. The hybrids are fully as good as the pure, so far as storing honey and fertility of queens are concerned. But when a purchaser pays for an Italian swarm, he wants and expects to receive what he paid for. If I am rightly informed, humbug is not all confined to this side of the big water, for it is not every imported queen that proves to be pure. I might say more for the Italians, but enough at present.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Observations and Suggestions.

MR. EDITOR:—Having been for many years a subscriber to the AMERICAN BEE JOURNAL, it has afforded me much pleasure to note the improvements that have been made in its character and appearance, during the last two years; as well as the increasing interest shown in the cause by its numerous correspodents.

Although not a large bee-keeper, I have been more or less engaged in the business for the last twenty years. Since the Italian bees came into notice I have purchased several queens that were supposed to be of the *purest* stock, and by that means have succeeded in Italianizing and hybridizing nearly all of my colonies. In some cases, where bees have been removed to a new and distant locality, my observations have resulted in the impression that their industry and energy were increased by the change; and it is quite reasonable to suppose that the infusion of new and improved blood would have the same beneficial influence in their case which it has on other kinds of stock. But further than this I cannot say that I have found any decided superiority in their favor.

It has often occurred to me that our climate in this immediate locality was one of the worst in the country for bees, as from cold and wet weather, they frequently lose the whole range of the early blossoms; and I think they never accumulate any surplus stores after the first or second week in July. The last season was a very unfavorable one for bee-keepers in this vicinity. Scarcely any surplus honey was made, and very few young swarms will survive the present winter. In consequence of the scarcity of the honey supply, great numbers of bees were lost in the grocery and country stores; and old stocks were much weakened thereby.

Our winters are probably too open and variable to admit of storing bees in special depositories. But I am favorably inclined to the plan of packing and wintering them on their summer stands. For this purpose our common hives might be moved gradually close to each other in the fall, and temporarily boxed around with boards, and filling up the interior space with cut straw or other non-conducting material—leaving a small passage outward for the bees from each hive. They should also be covered over and kept dry. When they are left unprotected, every cold spell will cause the death of a large number. Sometimes a pint or more of dead bees will be found on the bottom board at once. Out-door packing might prevent this, and also allow them to fly out when the weather permits. This plan is only recommended for common hives that are already in use. In making or buying hives, it would be much better to get those which are designed for inside packing.

Most of my hives contain movable frames; but there are also a number of the common square form. Where artificial swarming and queen-raising are practiced, a large portion of the hives should have movable frames; and I look upon artificial swarming as a necessity, where a large number of bees are kept. In raising queens in nucleus hives, there seems to be a difficulty in bringing the first crop to maturity. They hatch out well enough, but seem to get lost in various ways. Comparatively few of the earlier young queens become impregnated in time for the first swarms. But later in the season, there is little trouble in getting a supply of them. Losses then seem to be fewer, but the young queens come in too late for use in making swarms.

I see that some of your advertisers offer to sell pure Italian queens at very low prices—as low even as two dollars and fifty cents each, where twenty-five are included in an order. As we can hardly afford to buy Italian queens for all our stocks, even at these low rates, and are not always successful in raising them ourselves, I, for one, would be willing to try common queens at low prices, if they could be had when needed; and the colonies could afterwards be Italianized. The advantage to be derived from extra queens, so as to be able to give one immediately to the old as well as to the new swarms, is so obvious that some of our friends, who are in the business of selling queens, would do well to prepare themselves for this demand—which, I think would soon become a large one, since they could be sent so cheaply by mail. The recent mortality in bees may lessen the demand for queens, as those who have no bees, will not wish to buy queens.

Another matter, on which I would like to have the views of more experienced bee-keepers, is this: when removing a strong swarm and substituting a weak one—either for the purpose of making swarms, or recruiting weak stocks—is there no danger, from the great rush of strange bees into the weak hive, that the queen of the latter, unless caged, will be destroyed, before they have time to become acquainted with her? So many mishaps have resulted from my experiments in changing hives, that I have latterly adopted the plan of caging the queen, or where, as in the case of a common hive, that cannot be done, of substituting queenless stock for a time, until they have become aware of their loss, and then replacing this with the one that is to remain.

STEPHEN SCOTTON.

RICHMOND, IND.

[For the American Bee Journal.]

Impure Italians, and Queens Mating Twice.

Sometime since a copy of Kidder's circular, giving description and price of Italian bees and queens, came into our possession. In this circular it was claimed that inasmuch as the Italian bee existed nowhere in its purity—not even in its native country, Italy—living as it did in close proximity to our common kind; that as a natural consequence, one, two, and three banded bees would appear simultaneously, in colonies having purely mated Italian queens; and purchasers must be satisfied, if even a majority of the workers have the three yellow stripes around the abdomen.

Now, every intelligent bee-keeper, who has practiced rearing Italian queens, knows that queens from pure mothers having mated with common drones, wi l beget workers a majority of which will have the three yellow stripes. At least this is my experience. But Mr. Kidder's customers receiving such queens must be satisfied, since a majority of their workers are three banded, and by this mode of reasoning such queens are as near an approach to purity as can be arrived at, from *their present imperfect condition!*

Another tenet in bee-keeping, not less absurd and inconsiderate than that taught by Mr. Kidder, is the doctrine that an Italian queen may and often *does* mate concurrently and consecutively with drones of different species, whereby her progeny are differently marked—some being common, some Italian, while others partake of the character of both. This idea is being disseminated here, by persons engaged in the queen-raising business, and in my opinion is a shrewd invention to blind the minds of those bee-keepers whom they wish to humbug by their spurious queens. Thanks to such men as Langstroth, Gallup, &c., for their regard for truth and the rights of others, by refusing to allow such errors and impositions to be practiced upon the people, without entering their protest.

By the way, allow me to express my thanks to Mr. Gallup for the freedom and liberality with which he has favored us with the results of his observations and experience in practical bee-culture. He is just the kind of man we want to instruct us in the art; and his ideas are of the first class. The size, shape, and practical workings of the hive he has presented for our consideration, I like very much. Long may he live to enjoy the advantages which his favorite hive and long experience in bee-keeping afford him.

J. L. MCLEAN.

RICHMOND, OHIO.

[For the American Bee Journal.]

Swarming Without a Queen.

A colony of bees cast a top swarm, without issuing or the queen leaving the hive.

This, Mr. Editor, would seem almost incredible, but there is hardly anything impossible nowadays. The following account of the accession of a swarm to the apiary of James McLean, in accordance with the facts above stated, came under my observation:

In the summer of 1865, Mr. McLean had a swarm issue rather late in the season—too late to secure honey enough to enable it to pass the winter in safety. It therefore died, leaving the hive, however, full of nice comb. This hive, which was a box in the form of a four-cornered pyramid, with glass on its sides, and a slide, by means of which the operations of the bees upon the combs could be distinctly seen. The comb he reserved for a future swarm. The next year, the swarming seasom having arrived, he placed this hive at the side of a populous colony, with its edge a little raised, that the bees, then beginning to lie out, might pass up among the combs and protect them from the depredations of the miller. As the number of bees increased and the storage of honey gradually crowded them out, they wended their way up among the combs and finally began to deposit honey in them. Each subsequent day brought further accessions of honey to those combs; and soon our attention was drawn to the gradual lengthening out of a queen cell on the edge of a comb, which had been started by the bees the season before. This process of queen cell construction progressed from one degree of formation to another, until it reached completion. Then, to our astonishment, after the lapse of sufficient time, a young queen emerged from the cell, to assume undisputed possession of so pleasant a habitation.

In process of time, this hive began to be replenished by bees reared from its own combs; its intercourse with the parent hive ceased; its independence became established; and it now ranks among the first colonies of the apiary.

Query.—Did the bees remove an egg from the parent hive, and place it in this cell; or did the queen lay it there?

JOHN L. MCLEAN.

RICHMOND, OHIO.

[For the American Bee Journal.]

Experience with Bee Stings.

I am glad Mr. Gallup has related some of his experience with bee stings; and also that he has recommended water treatment. When I commenced beekeeping a sting was a formidable affair, swelling for several days and obstructing my sight if inflicted near the eyes. Now, although the pain is sharp at first, in a few hours the swelling is at its height, and is generally not noticed. Probably my system has become accustomed to it.

Having tried the water treatment several years, not only in my own case, but for others, I am satisfied that it is the best remedy I have tried, and I have tried many. I have a brother to whom a bee sting is very poisonous. Several years ago he was stung in his upper lip, which swelled badly. A few days afterwards he was stung slightly on his body. Within five minutes his upper lip began to swell; then his face, especially under his jaws, giving him somewhat the appearance of a severe case of mumps. He then began to feel oppressed for breath, and blotches began to come out over his body and limbs, which looked like nettle-rash, and caused him to feel uncomfortable and alarmed. At the same time he felt sick and chilly. We removed his clothing and sponged his body with tepid water. He then began to feel relieved and after lying down a short time felt much better. Subsequently, when stung, his upper lip would begin to swell within three or four minutes; but at no other time have the symptoms been as serious as at the time mentioned.

I should have said that the sting which produced such a marked effect was inflicted by a bee which accidently flew into his shirt bossom, and it appeared to be very slight. If I remember correctly, it was nearly over his stomach; which may account, in some degree, for the remarkable effect produced. But at the same time it must be remembered that a bee sting was and is a serious affair for him whenever inflicted.

A person who intends to keep bees should expect occasional stings, and be determined to bear them with fortitude. This will take away at least half the suffering occasioned by them. By experience a person will know when to expect cross bees, and be prepared for them. I have had swarms intolerably cross when hiving them, and a day or two afterwards would open the hive and handle them with no protector and not a cross bee.

J. L. HUBBARD.

WALPOLE, N. H., December, 1868.

A person who has familiarized himself to bees, can by means of the passion of fear impressed upon them, and by that dexterity in the management of them, which can only be acquired by practice, manage bees as he pleases.—*Wildman.*

[For the American Bee Journal.]

Camphor vs. Robbing Bees.

I noticed an article in the April number of the BEE JOURNAL from A. Grimm, about using camphor to stop bees robbing.

I had two stocks of bees that were being robbed, and I did not think it possible to save them, without removing them into the cellar; but thought I would try the camphor. I had no gum camphor in the house, and therefore took some of the liquid in a teaspoon, and turned it on the bottom board near the front entrance (inside); and in less than one minute every robber bee had disappeared. I never saw such a scampering, to leave. Upon examination both stocks proved to be queenless.

G. R. AYRES.

SPRINGFIELD, ILL., April 26, 1869.

[For the American Bee Journal.]

A Gentle Reminder.

MR. EDITOR:—I have been a reader of the BEE JOURNAL for three years, and peruse its pages with more interest than any other reading matter that comes to hand. I wish I could get a number every week.

Bees are cultivated with some taste in this place. There is one man in town cultivating the honey bee without the BEE JOURNAL. That is, he does not take it. He borrows it occasionally. I don't like very well to lend the numbers. They are gone sometimes when we want them ourselves. Our friend over the way is a clever fellow (as you know all bee-men are); and we will try to get him to send for the next volume.

We got an average yield of honey here last season. Some bees have died through the winter. We are looking for a good time this summer. I will not tax your patience further.

A. P. DURANT.

ATHENS, OHIO.

[For the American Bee Journal.]

Bees in Connecticut.

MR. EDITOR:—My bees have wintered finely, under an open shed, covered with straw, cobs, carpet, &c. They have been gathering pollen now two weeks, and are brooding fast.

I look upon your JOURNAL as indispensable to the beekeeper. I would not part with the information contained in three certain articles from your very valuable contributor, Mr. E. Gallup, for the price of a volume.

About "that division board." A very good one can be made by tacking a piece of pasteboard, of the size required, on one of the frames. It will be found light and convenient.

W. H. KIRK.

WEST CHESHIRE, CONN.

[For the American Bee Journal.]

Queen Raising in Winter.

MR. EDITOR:—Rather an unusual occurrence came under my notice a few weeks since, of a colony of bees raising a queen in mid-water. I will give the facts of the case, throw out a few suggestions, and leave it open to the readers of the JOURNAL.

In October last, I furnished a neighbor an Italian queen—a young one, which had just commenced to lay. After destroying the old queen in a good strong spring swarm, he introduced the Italian queen. They received her all right. The first of December he closed the entrance of the hive, gave them upward ventilation, and removed them from their summer stand to a dry cellar under his dwelling house. About the middle of January, when visiting his bees, to see if they were all right, he distinctly heard the piping of a young queen. He immediately removed the hive to a convenient place, and commenced an examination. He found a good fair quantity of bees and honey, and on the three central cards considerable brood in all stages, and on one of the cards a good-sized queen cell guarded by a cluster of bees. On opening this cell he found a fine, young, full-grown Italian queen; and on one of the other cards he found the old queen, apparently all right. He destroyed the young one, and removed the hive to the cellar again.

Now I would like to know if any of the readers of the BEE JOURNAL has ever had a case of the kind come under his notice. Does it not at once settle the point, that the royal jelly, a food given to young queens, is nothing more or less than honey, pollen, and water? For, in the above case, there could not possibly have been anything more obtained by the bees. Does it not also account for so many colonies having drone-laying queens in the spring, when returned to their summer stands? Last spring I myself, had, out of thirty stocks all right in the fall, three drone-laying queens; and those were in hives that had in them, in the fall, young prolific queens of that season's raising. Possibly they raised another queen, for some cause unknown (to me at least), like the colony above referred to; and when the queens were allowed, by the bees, to come together, the prolific one happened to be slain. This of course would leave the hive with a young queen, without a possibility of her becoming fertilized.

I have now given the facts of the case, and hope to hear from some of the readers of the JOURNAL, who have had more experience than myself.

H. M. THOMAS.

BROOKLIN, ONTARIO, CANADA.

The goodness and flavor of honey depend on the fragrance of the plants from which the bees collect it.

The honey gathered by the bees early in the spring is finer and preferred to that gathered in the fall.

[For the American Bee Journal.]

Dividing Bees, or Making Artificial Swarms.

There are several ways in which bees may be divided and artificial swarms made, with comparative success. The object should be, however, to make artificial swarms, that are in every respect equal to natural swarms, leaving the parent stock in equally good condition also. To do this, we require to keep as close to nature as possible. In other words, we must act in perfect harmony with the nature and habits of the bee. It would then be well to inquire, what is the true condition of the parent stock, after a first swarm has been cast; and of the first swarm after it has been hived?

It is well understood that the old queen goes with the first swarm, and a very large portion of the bees—that is, worker bees, as the drones always remain in the parent hive until the second swarm issues, which always contains a young queen. It is well understood, also, that the first swarm seldom issues until queen cells are commenced and young queens are being developed. It will be seen then that after a first swarm has gone off, the parent stock has but few bees, and no queen. It is, however, full of combs filled with young bees in all stages, from the larvæ to the full grown bee issuing from the cells, and young queens which will be matured in about nine days. Such then is the natural condition of the parent stock, after a first swarm has issued in a natural way. The first swarm after being hived is in the following condition. It has an empty hive—a hive without comb or honey; but it has a laying queen and a large number of bees.

Now how shall we divide a colony so as to secure the same conditions to both stocks? If we could do this, and make our swarms a few days earlier than they would swarm if left to themselves, and save the trouble of watching for swarms to come off, and the loss of bees going to the bees it would be very desirable.

I will now give my method of making swarms, and the reader may see how near I keep to nature. I wait until I see some signs of swarming, or near to swarming time, generally to about the time queen cells are being started. I then go to the hive I wish to divide and search for the queen by looking over each card of comb carefully. As soon as I discover her, I put the card of comb on which I find her in a new empty hive from which I have removed one frame. I then put the frame in the old stock, in place of the card of comb I removed. I now remove the old stock away some distance to one side, putting it on a new stand; and set the new hive, in which I put the queen, on the stand were the old hive stood. The result is, the bees will rush out of the old hive, return in large numbers to the old stand and enter the new hive, where they find their queen, but an empty hive.

It will now be seen that the old stock or hive will lose a large proportion of bees and the old queen, the same as in the case of a first swarm go-

ing off naturally; but it will contain all the combs, honey, and young bees, save what are contained on the one card removed. If queen cells were not already started, they will at once start them, and a queen will be matured in ten or twelve days, only a day or two longer than when a swarm issues naturally. The swarm in the new hive will be in just the same condition as a first swarm would, except that they have a card of comb instead of an entirely empty hive; and the next day even this card of comb may be removed, first shaking off all the bees and the queen, and replaced in the old hive again, leaving the swarm to build all new combs, as in natural swarming.

It will be seen at a glance that nothing can be nearer nature, than the plan I give. "But," says some one, "it is difficult for me to find the queen, and I would like some method that I could practice, without searching for the queen." Here it is, then. When you wish to make a swarm, first remove the stock you intend to divide a short distance away, and set an empty hive on the stand where the stock stood. Now remove each card, carefully shaking off or winging off all the bees back into the hive, and place the card in the empty hive. By the time you have placed them all in, there will be bees enough return to nourish the brood. Having put frames into the old hive from which you have just removed the cards of comb, place it again on its stand, removing the new hive into which you have put the cards of comb to a new stand. It will now be seen that the queen and a large portion of the bees will be on the old stand, in the old hive now filled with empty frames, and like a first swarm will go to work and fill their hive with new combs. Care must always be taken that the hive containing the combs has bees enough to nourish the brood.

I would here remark that whatever method is practiced, it is absolutely necessary that the old queen be in the empty hive, as bees always build drone comb when they have no queen; and every method that does not recognize this fact should be rejected.

J. H. THOMAS.

BROOKLIN, ONTARIO.

[For the American Bee Journal.]

Reply to B. C. Auchampaugh's Questions About Patent Rights and Claims.

MR. EDITOR:—I will answer, as briefly as I can, the questions of B. C. Auchampaugh, in in the last number the JOURNAL.

And first, let me assure him that he is entirely mistaken in supposing that I claim to be the first inventor of all kinds of movable frames, as the following extracts from page 209, 3d edition of my work on bees, published in May, 1859, will plainly show. "I have before me a small pamphlet, published in London in 1851, describing the construction of the "Bar and Frame Hive" of W. A. Munn. The object of this invention is to elevate frames, one at a time, into a case with glass sides so that they may be examined without risk of annoyance from the bees."

In the June number of the BEE JOURNAL for 1861, page 142, is a communication which first appeared in the "Country Gentleman," some extracts from which will make this point still clearer to your correspondent:

"When I applied for a patent, I was not aware that movable comb hives had ever been used, except those with movable bars or the sectional frames of Huber. The former required the combs to be cut from their side attachments, while the latter were so costly and demanded so much experience, time, and patience, to open and close the sections, that notwithstanding they were invented at the close of the last century, they were confined almost exclusively to amateur bee-keepers. * * * * * * * Since my application for a patent, I have ascertained that prior to my invention other movable frames besides those of Huber, were in use in Europe. None of them, so far as I can learn after thorough inquiry, are any better than those of Huber. I would refer those who desire information on this point, to the *Cours Pratique d' Apiculture* of Mr. Hamet, published in Paris in 1859, which contains a larger variety of cuts and descriptions of hives than can be found, I believe, in any other work. All the modifications of the Huber hive are pronounced by Hamet to be useful only for purposes of observation; and he asserts that, in the districts of France, where bee-keeping is most largely pursued, no movable frame hives have ever come into general use—and that the removal of the frames from the best of them is often more difficult than from the Huber hive. He closes his account of these hives with the significant remark that, "in a moment of enthusiasm" he once supposed that such a hive might be cheaply made, but that he had tried in vain.

"Now compare these results in France with the extension, by the best practical bee-keepers of this country, of the movable comb principle, and the inference will be almost irresistible that they have not *yet* invented a cheap and practical way of using movable frames. * * * * * Of all the movable frame hives now in use on the continent of Europe, the Berlepsch hive is probably the best. It was invented subsequently to mine, and uses the essential features covered (in this country) by my patent, without which the German hive would have had no more practical utility than those which have so signally failed.

"Allow me to give an extract, in this connection, from a letter received by me last fall from the Baron Von Linsingen, of Osnabrück, Kingdom of Hanover, dated August 10, 1860:—'I feel convinced that no other apiarian has been able to construct a movable comb bee-hive in such an advantageous way as you have done.'

"Were I to attempt to show in what particulars the various patents in this country, using movable frames, have appropriated to a greater, or less extent, the essential and patented features of my invention, I should require more space than in the largest liberality you would be willing to give; besides opening a personal controversy in which comparatively few of your readers would feel any interest. This much, however, I wish to say, that in my opinion all of them

use some of these features; and that without this use they would be of no more practical value than the European hive. * * * * * * * I have never sought for more than my right, and if any one can show that before my invention there existed any movable frame hives adapted to practical use, or any invention that used the essential and patented features of mine, I will try to be the first to acknowledge that, though an *original* inventor, I was not the first inventor of such a hive."—L. L. Langstroth.

A few remarks will show Mr. Auchampaugh why the Patent Office is continually granting patents on inventions which use some, or all, of the patented features of my hive.

Suppose that A makes and patents an invention. B makes what he calls an improvement, using, however, some of the features covered by A's patent. In his application for a patent he confines his claim to the new feature which he has invented. Could the Office, with any show of right, refuse his application? They must take for granted that after his patent issues, he will obtain a license from A to use the patented features without which his invention would be worthless; or that, if he attempts to use or sell his invention without such a license, A will resort to the Courts of law for redress. C, D, E, &c., may each patent successive improvements; and all of them, if they use A's patented features, must get license under him. If C uses any of B's patent, he must also get a license from B; and the patentee of the last improvement must obtain license from all the parties whose patented features he uses. It will then be seen that, in the cases supposed, the first inventor is the only person who can use his own invention without any license; and that he can not use a single improvement patented by other parties, without license from them. This is all manifestly right; for, if the first inventor could prevent other parties from patenting improvements, where would be the inducement to others to attempt to perfect any invention; and if improvements using features already patented, could be made and sold without license from the first inventor, where would be the inducement for any one to spend time and money in patenting an invention, when any improvement could deprive the original inventor of all pecuniary profit for his own invention? From ignorance of these important principles of patent laws, the public are often grossly deceived. Some one, for instance, patents what he calls an improvement on some valuable patented invention. With his patent, to which the great seal of the United States Patent Office has been duly affixed, he goes around among those who are entirely ignorant of such matters, to sell his invention. If he is brazen-faced in his dishonesty, he will, when asked what features his patent covers, boldly assert anything in the machine or patented article—the fact often being that the feature really covered by his patent is some worthless conceit, for which the purchaser, if he knew what he was buying, would not pay a single cent; while the thing that attracts him, and the right to use which he supposes he is buying, is something not claimed in the patent shown, and is really the property of another. The old latin maxim, "Suppressio veri suggestio *falsi*," (the suggestion of falsehood by the suppression of truth) is plainly applicable to all parties who advertise and sell any patent which cannot be legally used without a license from some prior patentee, whose patented features are used in such invention. The only excuse which can save the honesty of such parties, is the plea of ignorance, which certainly cannot be applied to most patentees; and as far as regards my claims, cannot be of any avail to those who persist, after this exposal in ignoring my rights.

I am increasingly confident that no movable comb hive can be invented, that, in the long run, will stand the test, which does not use one or more of the patented principles of my hive. Do I seem to claim too much, or in a boastful spirit? If I was the first to invent (as I think I was) the combined features essential to success, I was like the company who having the choice of routes for a railroad or turnpike, selected the best and shortest one between two termini. Those who search for another and independent route, however sanguine they may be, can never get as good a one; any more than a way can be found between two given points, shorter than a straight line. Nearly all the movable comb hives in use in this country and Europe, use some of the essential and patented features of my invention; and I feel little hesitation in predicting that the few which use none of these features will, on thorough trial, be discarded by all who desire to obtain the highest degree of pleasure or profit from bee-culture.

L. L. LANGSTROTH.

OXFORD, BUTLER CO., OHIO, June 4, 1869

[For the American Bee Journal.]

Swarming on Foot.

Several years ago, while yet keeping the black bees, a hive of bees, in the swarming season, in plain view from where I sat at dinner, commenced pouring out of their hive in regular swarming style. But, singular enough, not a bee took wing. Before there was a pint of bees out, I set an empty hive a few inches from the first, on the same board, and brushed in a few of the bees, These set up their usual humming, and drew in the whole colony as it issued on foot. I left this swarm where it was, and it prospered finely. I may add that the day was rather cool.

JOHN L. DAVIS.

HOLT, MICH.

Great improvements may certainly be made in the essential article of providing plenty of pasture for bees, whenever this subject shall be more carefully attended to than it, unfortunately, has hitherto been.—*Wildman.*

Bees themselves may be reckoned enemies to bees; for they sometimes wage cruel wars against each other.

[For the American Bee Journal.]

Honey Dew.

MR. EDITOR:—I will give the readers of the JOURNAL my knowledge of honey dew, as it was requested in number 10, for April, 1869. I have been acquainted with this species of dew, in the State of Maryland, for twenty-five years. I have never known it to miss for six years, at any time. It has no regular period, but appears to fall for two or three years, and at times will miss a year, and so on. Men who have noticed it in Ohio, tell me the same.

I never knew it to fall later than July. In July, 1868, I was in Maryland, and it was a very dry time. We had three dews, which was all the bees could get at then, and they went for it strong. The woods were alive with bees; and they filled their hives below, and started in the boxes.

This dew, so called, stands the sun very well. I was often told that if the sun shone hot on it, it would waste away. To convince some how it was affected, I gathered some leaves with the dew drops on, and laid them on a rock, where the sun could strike it all day, and it was as hot as I ever felt it. In the evening the leaves were dry. They lay there all night, and in the morning the dew was as good as on the first day. I am sure that if the bees do not get it all the first day, they can get it from day to day, until a rain comes and washes it off.

Bees like this dew. It makes a very nice honey, and bees live on it as well as on any honey that they gather. Its color is somewhat like our best syrup molasses, but it makes a very nice and good honey. Its effect on bees, I must say, is perfectly harmless. I am satisfied of this, by experience. In the State of Ohio, I never saw many honey dews; but, I think, from some cause or other, five swarms die here for one in the Eastern States.

About the sugar this dew may contain, I am not prepared to say. I have no doubt it will make sugar, as all other honey does. Bees gather other substances that would not make sugar before they make honey of it. If bees will not live on anything but sugar, then it certainly contains sugar, for I know they live on the honey made from this dew.

Where this dew originates I do not know; but I am sure it is no insect honey. The writer spoke of salt dew. I suppose that about the salt lakes we might find salt dew; and so this may come from a honey lake source, though the climate might change the dew.

This is my experience of honey dew, as a response to the request of a writer in the JOURNAL.

M. D. FOGEL.

ALPHA, GREENE CO., OHIO, May 21, 1869.

Antonine, the martyr, in the seventh century, speaks of the honey of Nazareth being most excellent, and in the present day bees are extensively cultivated at Bethlehem, for the sake of the profit derived from the wax tapers supplied to the pilgrims.

[For the American Bee Journal.]

Inside and Out.

On examination in the fall of 1868, I found four stocks, so very deficient in both honey and bees, that I concluded to place them in a cellar, where the temperature was uniform at about 45°. It was perfectly dry and the hives were on a bench, three feet from the floor. One stock, the weakest of all, was in a common box hive, with a two-inch hole in the top. I left the bottom entrance open, but closed the hole in the top, by placing over it a glass jar filled with candy, of which they consumed three pounds. When placed out, March 14th, they worked eagerly at meal, and to-day (June 1st), this stock is one of my strongest. I continued the candy feed until the apple trees were in blossom, using altogether less than five pounds. The three other stocks were in movable frame hives. I closed the entrances, and placed candy over the holes in the honey boards, so that they could come up when they chose. They were very uneasy. At first I thought they required *more* ventilation, and I raised the honey boards; but they were still more restless. I soon found them dying with dysentery—covering combs, frames, and hive, with the black excrement so well known to most beekeepers. This was a clear indication that my treatment was not adapted to their case. So placing the candy on the frames, over the bees, I made all tight and warm overhead, opening the bottom ventilators. They revived, and I found no more dead bees on the bottom boards. Though very much reduced in numbers, they were active in carrying in the meal, as soon as placed on their summer stands. I have satisfied myself that *upward ventilation is not adapted to weak stocks placed in a cellar.*

I wintered sixteen stocks on their summer stands; with all upward ventilation closed, and bottom ventilators left open. They were in single board hives. *I turned the entrances towards the north*, which saves many bees—for as the sun does not strike the lighting board, they do not venture out, except in very mild weather. The hives had no shelter, but remained exactly as in summer. All but one wintered spendidly, and that one was a common box hive which had evidently lost its queen, for there was plenty of honey, but very few bees. I believe this turning the hive will be found very valuable by all who winter out of doors; but I do not remember to have seen it recommended or suggested in the JOURNAL.

Apiarians should remember that their location must determine the best method of wintering their bees. In this neighborhood, where we are almost sure to have one or two warm days in every week, I believe it is much the best to leave all the stocks which are in good condition, on their summer stands; but I have equal confidence that very weak stocks can be wintered safely and cheaply in dry cellars, by feeding candy, *without upward ventilation.*

IS THE LOSS OF THE STING FATAL?

One cold morning in April, I visited my hives before breakfast, and found a large mouse

which, in trying to effect an entrance through a hole too small for him, had become wedged, so that he could neither advance nor return. He was was covered with bees, all seeking an unoccupied spot to deposit a sting. He died a few minutes after I released him. I counted thirty stings left on his tail alone. The bees crawled back into the hive as soon as I removed the mouse. As the morning was damp and cool, no bees flew till nearly noon. I then examined the hive and found no dead bees, nor any on similar examinations for several days. Did the bees which had lost their stings all wait until noon, and then fly out never to return? Or is it possible they could have survived after so fearful an injury?

I wish, through the JOURNAL, to thank Mr. Gallup and many other of your correspondents, for their valuable suggestions and experiences. In the matter of ventilation I do not dispute the accuracy of "Gallup's" system of inside wintering strong stocks, with upward ventilation. But that applies to steady cold winters, and not to our changeable climate. Poor Novice's list of reverses would have been less appalling had he left his bees on their summer stands.

C. D.

STANWICH, CONN.

[For the American Bee Journal.

Cheap Unpatented Bee-Feeder.

MR. EDITOR:—Seeing a description of a bee-feeder in the BEE JOURNAL, I send you a description of the one I use, and which I like very much.

Make a box out of half-inch lumber, four inches wide, eight inches long, and two inches deep. Nail it together firmly. Then run beeswax around the corners, to keep it from leaking. Now bore one or two one-inch holes, with a smooth boaring bit, through the bottom at one end. Just back of these holes, or one and a quarter inch from the end, make a partition one inch high, to keep the honey from running down into the hive. Two inches and a half from the other end, make another partition. Let it set up one-eighth of an inch from the bottom, and come one-fourth of an inch above the top of the box. Now make a float to fit the central apartment, to keep the bees from drowning. Drive a few brads into the bottom of the box, to keep the float one-eighth of an inch from the bottom at all times. Put a glass, five by six inches, over the end into which the bees have access, and the feeder is finished.

You can now pour honey or sugar syrup into the other end, which, passing under the division board, raises the float without, disturbing the bees, or attracting robbers. There is little or no loss of heat from the hive, and it is very convenient. Another advantage is, there is no patent on it. JAMES E. CRANE.

BRIDPORT, VT., May 7, 1869.

MELISSUS, King of Crete, is said to have been the first who invented and taught the use of bee hives.

[For the American Bee Journal.]

Results of Wintering.

In the May number of the JOURNAL, page 212, I notice Novice's account of his reverses. I expected something of the sort, but not that it would go as far as it seems to have done. Those who have read my article on wintering bees, in the December number, page 108, will have seen at the conclusion of it that I was just reducing my stocks to fifteen to feed for winter. I reduced to fourteen and fed as I said, and had them all ready for winter by last of November, on the same plan then described. Every stock wintered safely. No further feeding was required until near March, when I commenced giving them a spoonful a day to each hive, to stimulate breeding, as they were all weak as regarded both bees and stores. One stock I found, in April, with a drone-laying queen. I thought the best plan would be to take off her head at once, and unite the bees with the next weakest stock, which I did.

My neighbors all laughed, as usual, at my folly in going to so much trouble as to haul a load of straw to winter bees, &c. But in spring, when they found that all my bees were alive, and not a live stand of their own left—some having lost as many as sixty stands, (all they had,) they changed their minds considerably. They say the disease went all around me, but spared my bees; though I tell them it was no disease at all. I agree with Burbank, Gallup, and a few others, as to what was the cause. I am surprised that Novice thinks it was a disease that killed his bees. In my opinion it was his own imprudence, in delaying so long to place them in the cellar. However he may differ from me in opinion, we are now on equal terms and will take a race. He has thirteen stands, and I had thirteen on the 3d of May, when swarming began in my apiary. His aim is to increase his stock; and that is my aim also at present. I now have thirty-one stands, all natural swarms, and four old stands have not swarmed yet. Every one of these swarms came out in May, except the last one, which issued to-day, June 2. The first swarm, which came out May 3, is about to swarm again; and if the remaining old stands do not send out swarms this week, I shall next week make artificial swarms from them. I prefer natural swarms, when they come early enough. The season is first-rate, and several of my stands have their caps about full.

Does Novice want to know the secret of my success? Well, tell him that as all, or ninety-five out of every hundred of my neighbors' stands died last winter, I procured all the clean combs I could, and fastened them into frames, and so saved my bees the labor of gathering sixty pounds of honey first to fill the frames, and then forty pounds more for cap honey, provided the season is not then over. Had I reared early queens, my success might have been almost as good again; but I neglected this, fearing I should weaken my stands.

I would suggest to Novice to try ten stands on my plan next winter. I will report the re-

sult of this season's operations in the September number of the BEE JOURNAL; and hope Novice will do the same. If it then appears that he has beat me, I will send him an Italian queen of my own rearing. I am sorry for his reverses, as a man who cares as much for his bees should not meet with such reverses.

The BEE JOURNAL should, by all means, be sustained. What would beekeepers do without it? Then let them pay in advance promptly, and not neglect it like myself for a year, or nearly so, simply because my last money was stolen from the letter. Though I live thirteen miles from the nearest money order post office, I will procure an order, to insure safe transmission this time.

R. M. ARGO.

LOWELL, KY., June 2, 1869.

[For the American Bee Journal.]

Reply to Charles Dadant.

Yes; the drone cells were cut down to the same depth; and made same size, on the other end, as worker cells. And I have seen eggs, after they were laid, in both worker and drone cells less than half the usual depth; that is, they were in process of construction when the eggs were laid. On the 25th of May, this year, I found a piece of drone comb that had been placed on the honey or top-board, or sticks, so that the bees could carry the honey out of both sides; and it being left too long, the bees built new comb upward from the horizontal piece of old comb, making curves until they could assume the upright or perpendicular. There were eggs and brood in both sides, old and new comb; some of the brood were capped. Now would those that stand on their heads hatch out queens? Being anxious to destroy nearly all the drones in my apiary, having cut out all drone cells from the worker combs, and inserted enough in frames by themselves to control that kind of stock, I did not like to be controlled by the bees or queens, and hence destroyed the piece of comb referred to, too soon for knowledge.

Bees have done better this spring on fruit, flowers, and the dandelion, (*tarazacum*), than ever before, having commenced to swarm on the twenty-fifth of May. Many stocks have more honey in their hives now than they had last fall.

JAMES M. MARVIN.

ST. CHARLES, ILL., June 3, 1869.

Oil of olives, or any mild oil, is thought by many to be a cure for the pain and inflammation arising from the sting of a bee; but repeated experiments have shown that it fails oftener than it succeeds. It seems probable that the success sometimes met with, is rather an accident than a cure; for there are many people to whom the sting of a bee does not occasion any pain or inflammation. Some men disdain to use the least precaution, even when they are sure of many stings.—*Wildman.*

[For the American Bee Journal]

Non-Swarming.

In the May number of the JOURNAL, C. E. Thorne, of Selma, Ohio, asks if the bee disease can be connected with the fact that the bees cast no swarms during the season. I answer positively, No. I have been keeping bees in a small way about twelve years. I found a very small swarm on a brush pile, late in June, 1856, which I put into a hive ten inches square by eighteen inches high. They managed to get stores enough to carry them through the following winter. The next season they filled up the hive and got quite strong, but did not swarm. In May, 1858, I found a swarm in a hollow shell-bark tree, which I cut down and sawed off immediately above and below their stores, which occupied a space about four feet long and from six to ten inches in diameter. The main entrance was within six inches of the top, and a very small hole near the bottom. They swarmed in about two weeks after I got them home, and never failed to give me one or two good swarms every year, until in 1867, the log got so rotten that it would hardly stand alone. My other long hive did about as well. I gave away and sold several swarms, yet in the fall of 1867 I had sixty-three stands, when I took up some of the oldest and some of the weakest—leaving me an even fifty over. These were in good condition, and bid fair early in the following season to yield a large harvest. All lived through the winter, and yet I did not obtain a single swarm from them. They are all doing well, except two that lost their queens this spring. These had got tolerably wormy when my first swarm came off, on the 27th ult. I put it into one of these old hives, with the old combs and worms. Next morning I picked up about twenty cocoons, with moths nearly ready to come out, and quite a number of worms. They have cleaned it all out, so that I did not find a single worm this morning; and they have commenced work in the honey boxes, which I put on the next day after hiving them. I have another swarm which I put in with the other weak stand, and they are doing about as well as the first. I have already had eighteen or nineteen swarms. My bees are all common black bees, and are in common box hives made according to Quinby's old plan. I have never paid much attention to them, except to hive them when they swarmed and put on honey boxes, and take them off again when full. I have generally let them take care of themselves.

I think Mr. Gallup is a little mistaken about bees all dying, unless they had access to buckwheat. I do not suppose there was a peck of buckwheat sown within five miles of my bees, yet I did not lose a single hive; though many died in town and out on the prairie. I suppose it was the crab apple honey that saved mine. Some of them had two eight-pound boxes nearly full on the first of June last year. They all had some, but cleaned it nearly all out before the first of September. After the rain set in, in

September, the strongest stocks stored considerable honey in the boxes. Some of this I gave to the weak ones, which carried them through all right.

C. T. SMITH.

TRENTON, CLINTON CO., ILS., June 3, 1869.

[For the American Bee Journal.]

Does it Pay to Keep Bees?

Having often been asked the question, does it pay to keep bees, or is it safe to invest money in an apiary? I have always answered the question by saying it does pay and is a safe investment, if the party investing thoroughly understands the nature and habits of bees, is willing to give them the proper care, and provide them with suitable hives. I now propose giving a short account of my success in bee-keeping.

Some fifteen years ago, I purchased two colonies, not with the intention of making money out of them, but for the purpose of providing myself and family with a luxury in the shape of nice, pure, white, honey. But I soon became convinced that, by proper management, they could be made to yield a profit, besides supplying my table with a wholesome luxury. Still, as there were at that time no movable comb hives, I had to labor under considerable disadvantage as well as loss. Very often some of the stocks would refuse to swarm until the season for collecting honey was nearly over. Consequently the young swarms could not gather honey enough to winter on, and not having the movable comb hives, these could not be built up from stocks that had plenty of honey and some to spare. Hence I was forced to destroy them in the fall, which was a loss. Other hives would refuse to swarm altogether, which of course was a loss of all increase from such. Then, again, some colonies would swarm and the young swarm would take a bee-line for the woods and disappear. Other hives would get infested with millers and worms, which would destroy them sooner or later. Yet, after all the losses from every source, I made a fair profit by selling honey, and occasionally a hive of bees. But since the introduction of the movable comb hive and the Italian bees, I have made more than double the profit; for there has been no loss from young swarms going to the woods, or from colonies refusing to swarm, or being destroyed by the miller. For I have practiced artificial swarming, which does away with all loss in that direction; and if millers get into a colony, I remove the cards and clean them out, thereby saving my stock. I also remove cards of comb from full stocks that have them to spare, and strengthen weak ones therewith, instead of destroying them, as I was forced to do formerly. Then again, the Italian bees defend themselves much better from millers, and are much better workers, consequently they store more honey in the boxes for their owners.

I commenced in the spring of 1867 with twelve Italian stocks, worth at that time about two hundred dollars. Last week I sold the increase of stocks for five hundred dollars, and during the two years I realized four hundred dollars in wax, honey, and queens sold. Allowing two hundred dollars for cost of hives and time in attending to them, (which will more than cover it), leaves seven hundred dollars, or three hundred and fifty dollars profit each year—not bad interest for two years.

A word, now, to parties intending to start an apiary. Get, if possible, a location where white clover is plenty; or, better yet, induce your neighbors to sow alsike clover, which is one of the most profitable crops a farmer can raise, either for seed or for hay, or for both; and for bees it is ahead of anything I ever saw. Provide yourself also with good movable comb hives, and the Italian bees; and be as attentive to them as you would be to any other stock from which you expect to derive pleasure and profit. An apiary started with such advantages, I am satisfied will, with proper care, prove to be a safe and profitable investment.

H. M. THOMAS.

BROOKLIN, ONTARIO.

[For the American Bee Journal]

Artificial Swarming.

MR. EDITOR:—I have a new method of artificial swarming, which I will try to explain to you.

First—I make my hives thirteen inches by nineteen, inside measurement, with the frames running crosswise. I have two entrances, one on the east and one on the south. Part of the bees will use one entrance, and part the other. As early as it will do to raise queens, place a partition board in the centre, with six combs on each side; and give the queenless side a queen cell after once getting a supply. Now we have two swarms of bees in one hive, and we get an equal number of old and young bees in each side, and they will keep each other warm.

As soon as they need more room, place an empty hive right up against the entrance of the one you wish to change, (the entrance of the new hive to be directly in front of the old entrance); and take out the frames and bees; put them into the new hive, and give each more room. If the hives are of the same color, the bees will not notice the change; and by moving them a few inches every day, they can be placed wherever desired.

This is a new idea of my own, and I shall soon put it in practice. I thought I would send it to you in season for the June JOURNAL, and give others a chance to try it.

Hives might be made large enough for sixteen frames. Then give each side two empty frames, and let them remain together till the bees fill them, and they will each be quite good sized swarms.*

J. L. PEABODY.

VIRDEN, ILLS.

*The Dzierzon "*twin hive*"—shown in BEE JOURNAL, vol. 1, page 15—is constructed substantially on this plan, and has long been thus used for the multiplication of colonies. It is a movable *bar* hive, and Mr. D. claims very positively that it is "the best hive yet introduced."—Ed.

THE AMERICAN BEE JOURNAL.

WASHINGTON, JULY, 1869.

☞Subscribers to the BEE JOURNAL residing in Canada, whose subscriptions ended with the fourth volume, will please renew them if they desire to have the paper continued, as the postage has to be prepared here. Mr. J. H. Thomas, of Brooklin, Ontario, is our authorized agent there.

Want of room, in this number, compelled us to omit a portion of Mr. Lambrecht's article, in which he further illustrates his views of the bad qualities of wooden hives, and advises the adoption of straw hives instead—especially one devised by Mr. Gravenhorst. Of this we shall endeavor to furnish a description hereafter; though we are inclined to think American beekeepers would prefer the straw hive patented, in this country, by Mr. Henchen, of Minnesota; if such are to be adopted.

Wooden hives, as used in Europe—and here too, if used in the same manner—may be, or at times become, liable to the objection urged against them by Mr. L.; but they possess so many advantages and conveniences in other respects, that the use of them is not likely to be abandoned either abroad or here. The effort, therefore, should rather be to devise some mode of obviating the objection, than to discard the material. This we conceive is best attained, in out-door wintering at least, by the judicious use of upward ventilation, whereby excessive condensation of moisture in hives is prevented, at a season when it cannot readily be removed by the bees. As soon in autumn, or the early part of winter, as moisture begins to be condensed in a hive, give just sufficient upward ventilation to check this condensation and keep the hive and its inmates dry. Let this be thus continued until towards the approach of spring, when brooding recommences; then water is needed, and the bees can appropriate condensed moisture in preparing food for the larvæ. Thus managed, the possible cause of foulbrood *from this source*, will be removed, the combs will not be enveloped in mould, nor the bees likely to be troubled with dysentery.

The condensed moisture is mainly derived from the ordinary insensible perspiration of the bees. This perspiration should be allowed to pass off freely in winter, and without condensation, if the bees are to remain healthy. Nor should a hive be so warm and tight as to increase the perspiration to a regular sudation, and keep it in perpetual flow. Bees could no more survive such treatment and keep in health, than men could if confined in the sudorific atmosphere of a close chamber. In a wooden hive having a good, thick, close-fitting bottom board, with tight and stout side walls, out-door wintering can be successfully accomplished, if judicious use be made of upward ventilation. This, German beekeepers, proficient as they are in other respects, have yet to learn. They condemn top-opening hives as allowing heat to escape too freely in winter, which they regard as certain to prove ruinous to a colony; whereas, were the truth as they conceive it to be, *we* should not have had a hive survive the winter years ago. How, when, whether, or to what extent, if at all, upward ventilation should be used, where bees are wintered in cellars, vaults, or special repositories, we do not undertake to say, as we have had no experience in that line. Experiments, with careful observation, can alone furnish satisfactory replies to those questions.

One of our earliest subscribers, remitting for our fifth volume, sent us his photograph, and suggests that other beekeepers should follow his example, to enable us by and by to get up, for our gratification, "a big album, *with three yellow bands*." The idea is original, and a volume exceedingly interesting to an editor might thus be *compiled*. One of our North Carolina friends sent us, some time ago, a photograph of his apiary, exhibiting tasteful arrangement and evidencing careful management.

Many persons when first told that, in this latitude, and in the general months of May and June, the queen bee lays about two thousand eggs a day, and can, and oftimes does, lay three thousand in that brief period, receive the information with evident incredulity—seemingly assenting to the statement only on the ground of impossibility and from courtesy. These have much yet to learn of the wonders and mysteries of insect life, and will find, as they proceed, if they *do* proceed, that that which they received with surprise beyond belief, is

really, comparatively, a small matter. Thus, in prolificness, the queen bee lags far in the rear of her royal sister, the queen of the *white ants*. In a recent communication to the *Ohio Farmer*, Dr. Lane, speaking of what he saw of this insect in his visit to Siam, says:—"The country is literally full of these pests, and they seem to be as diligent as ants were in the days of Solomon, for they were always at work, and in almost every place. It often seemed to me surprising that there could be so many, until I I learned that a single female is capable of laying *thirty millions* of eggs in a single year, or *eighty thousand* in a day. After this I ceased to *wonder*, and was thankful there were no more." As one of these queens lives two years in her perfect state, the multitude of her offspring reaches a figure in comparison with which that of the most fertile queen bee dwindles almost to insignificance.

Mr. C. F. Muth, of Cincinnati, having successfully tried the Uhle process of introducing queen bees, described in the May number of the BEE JOURNAL, writes to us as follows, under date of June 19.

"On Monday last I took a small tumbler full of syrup made of sugar, and flavored it pretty strong with grated nutmeg. I removed the queen from a hive of black bees, and fed the bees with most of the syrup. I then opened an Italian hive, caught the queen, and holding her with the thumb and fore-finger, dipped her several times in the syrup left in the tumbler, and set her on one of the combs of that hive of black bees. The third day after, on Wednesday afternoon, I examined the hive, and found the Italian queen, bright yellow as she was, marching among the black population as quietly as if she were still among her own people. This, no doubt, is a success; and this mode of introducing queens is worth very much to the beekeeper."

Dr. Devron writes us from New Orleans, on the 17th instant, "With me swarming (natural) commenced on the 19th of March—three weeks or a month earlier than the previous year; and I have already, within two weeks, obtained some two hundred (200) pounds of surplus honey from four (4) colonies, swarms of this year, placed in empty hives of the Langstroth pattern. Two swarms were Italian hybrids, and two ordinary black bees. No material difference found in the quantity or quality of the honey, save that the first swarm, having laid the surplus in frames, gave alone about eighty (80) pounds. In the North, wintering the bees is the trouble. Here it is in summering them, in exceedingly dry or rainy seasons, when *virgin* swarming or starvation often produce desertion or useless swarms."

It it stated, in a Silesian agricultural document, that, since 1850, when he introduced the Italian bees in Germany, Mr. Dzierzon has reared and sold about *five thousand* queen bees, at an average price of five dollars each. This might seem to be a large and profitable business; but when we reflect that it is the net product of fourteen years' unremitted labor and attention, and that meanwhile probably five-fold that number of queens were reared and lost, or proved to be of no commercial value, it can hardly be regarded as a very remunerative employment.

Correction.

In the report of the Michigan Beekeepers' Convention, published in our last issue, Mr. Moon is represented as having said that "he could control the time of swarming as follows: Raise queens artificially, and by putting one in a large full stand, swarming immediately takes place."

Mr. Moon says it should have read *queen cells*, instead of queens. He also adds that those cells will sometimes be destroyed.

[For the American Bee Journal.]

A Rare Case.

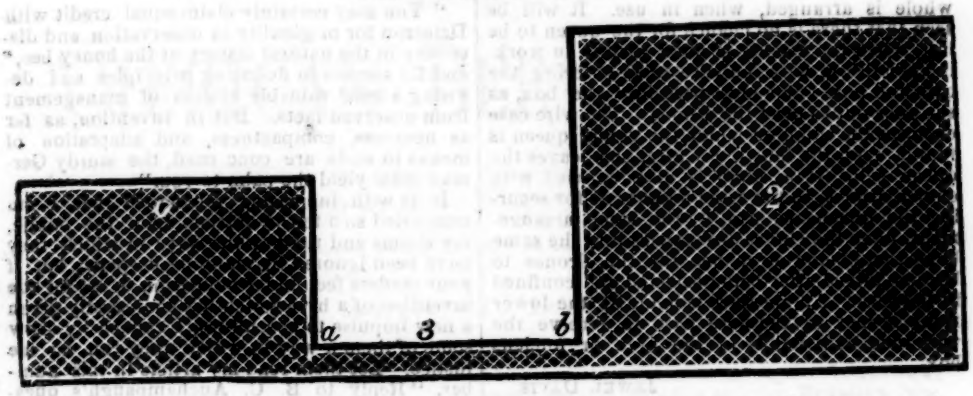
I had a rather singular occurrence happen in my apiary a few days ago, such as I have never known before. I had a young Italian queen reared in a nucleus. One day I went to it and found that she had that day met a drone; and having a stock from which I had taken a queen, I thought I would introduce her there, which I did. The stock was standing some twelve or fifteen rods from the nucleus. Several days after, on opening the nucleus, I found the young queen in there, with indications of having again met a drone. In endeavoring to catch her, she took wing and I have not seen her since.

C. H. HOYT.

NORWALK, OHIO.

[For the American Bee Journal.]

The Queen Catcher.



1. The wire box to catch the queen, as she passes out of the hive to meet the drones.
2. The wire case to enclose the comb on which the young queen is.
3. The wire tube connecting the box and case.

a. Entrance to the wire case,

b. Entrance to the wire box. On the cut, these entrances are not as distinctly indicated under *a* and *b*, as they should have been.

The queen catcher is a *new invention* which I have laid before several experienced beekeepers, who call it "a good and ingenious invention," to catch the queen in natural swarming, when that is allowed.

Some suggest that it will also do for securing the pure fertilization of young queens. This, of course, would require, in some cases, a different arrangement of the cages and tubes, to facilitate the operation.

The queen catcher is composed of a flat wire tube, 20 to 24 inches long, 1½ inches wide; and a wire box 7 inches long, 5 by 5 inches square, both made of fine-wove wire cloth. One end of the tube is inserted in an aperture in the box, made to receive it. Both box and tube are supported upon a frame on a level with the hive, so that the other end of the tube can be introduced into one side of the main entrance of the hive. The remainder of the main entrance is closed by a regulator so that none but the worker bees can pass in and out. Thus arranged, it is ready for swarming, the queen being compelled to pass out into the wire box. The swarm missing the queen returns, and discovering her in the box, clusters on it. The bees are then in a convenient place to handle and hive in the usual way; and we can satisfy ourselves of the presence of the queen in the box.

The box should have an aperture in the top, to let the workers which pass into it escape. It should also have a door, by which the queen can easily be liberated among the bees, when ready, and all is done.

As above suggested, I use this wire box and two tubes, when caging the queen and drones from different hives, at the same time—the tubes passing from each hive into the wire box; one hive containing the queen, and the other the pure drones. The entrance to each hive is to be closed, as in swarming; so that the queen and drones will be compelled to meet in the box. The young queen should never be permitted to pass out on her bridal tour, before the catcher is arranged. On the fifth or sixth day after leaving her cell, is the time she usually passes out to meet the drones, if the weather is favorable.

The choice drones should also be confined to the hive; for if permitted to fly out, black or impure drones may enter the hive with them; and thus the purity sought might not be secured, unless caught in a separate box and the choice drones selected, before caging the queen. If confined more than one hour together, they must be supplied with a sponge saturated with honey, for feed in the box. If the nights are cool, they must also be placed where they can have the heat of the bees to give them the proper warmth. They may require to be kept confined together forty-eight hours. The queen is liberated by turning open the door of the cage, down upon the frames.

When the hives containing the queen and the drones are too far apart to use one catcher as above noted, then of course two will have to be used, and the drones caught in one and then put in the other containing the queen, and arranged and managed as above stated.

I first used a glass box, but by experiment soon found that the wire is preferable, as it excites the queen and drones less; and where the heat of the bees and ventilation are desired, it is again preferable.

By a *union* of the queen catcher and Dr. Preuss' wire comb cage, (see A. B. JOURNAL, volume 4, page 200), we have all that can be desired to secure the pure fertilization of young

queens, since it will do away with some of the objections made to the plan above described.

The diagram will at once show how the whole is arranged, when in use. It will be seen that there is no chance for the queen to be lost, when the catcher is once placed in working condition, with the wire tube entering the case and box. She must pass into the box, as she goes out to meet the drones. The wire case encloses the comb on which the young queen is found, upon the fourth day after she leaves the queen cell. If a comb is also encased with choice drones, in the same manner as for securing the queen, we can, by the same arrangement, have the choice drones pass into the same box—there being no chance for the drones to become mixed after being selected and confined in the case. An aperture is made at the lower front corner of the wire case, to receive the wire tube, as it stands in the hive or nucleus box.

JEWEL DAVIS.

CHARLESTON, ILL.

[For the American Bee Journal.]

Justice.

MR. EDITOR:—In your May number Mr. Walter Hewson, of England, among other questions, says:

"The last question, though last is not least, do we not all hold ourselves indebted to Mr. Langstroth? Is he not the Father of modern hives and the Prince of modern Apiarians? A correspondent wrote some time back that we owe him a debt not only of gratitude but of *cash!* Brother beekeepers, if this is so, (and it really *is*), should we not find a pleasure in attempting to liquidate that debt?"

I desire to thank Mr. Hewson for the generous feeling which prompted him to speak thus. I appreciate it all the more, coming as it does, from an entire stranger, and being in such wide contrast with the treatment I have received from many of my own countrymen; some of whom, after profiting largely by my invention, have not scrupled either to withhold as far as possible, any proper acknowledgment of their obligations, or tempted others to use illegally my invention; and others still have for years denounced me as attempting to palm off foreign inventions as my own.

If, however, I should allow Mr. Hewson's question to pass without any comment, I should do the greatest injury to the celebrated Prussian Bee-Master, Dzierzon; who, by his discovery of the parthenogenesis in bees, has thrown a flood of light on points pertaining to their reproduction which puzzled the profound intellect of Aristotle, and eluded the patience and enthusiasm of a Swammerdam, a Reaumur, and a Huber. No true hearted beekeeper can fail to put the laurel crown upon the brow of Dzierzon, and hail him as *facile princeps* (our chief commander) in the strife of thousands of years.

While by this great discovery he has placed himself at the head of all, I may perhaps be pardoned for quoting from your letter, December 24th, 1852, published in the first edition (1853) of my work on the honey bee:

"You may certainly claim equal credit with Dzierzon for originality in observation and discovery in the natural history of the honey bee,* and for success in deducing principles and devising a most valuable system of management from observed facts. But in invention, as far as neatness, compactness, and adaptation of means to ends are concerned, the sturdy German must yield the palm to you."

It is with increasing reluctance that I am compelled so often to obtrude upon the public, my claims and the various ways in which they have been ignored by many beekeepers; but if your readers feel under obligation to me for the invention of a hive which has confessedly given a new impulse to beeculture, I can easily show some of them a way in which they can do me justice. Let them read my article in this number, "Reply to B. C. Auchampaugh's questions about Patent Rights and Claims," also the advertisement of L. L. Langstroth & Son, showing what territory in the extended patent is still controlled by them. If they are using any style of hive clearly covered by my claims, (see page 132 of the 8th number, volume 4, of BEE JOURNAL), no matter of whom they may have purchased the patent, they are using my property for which they have paid me no equivalent. Our advertisement will show them how they can do us justice.

It is true that the larger part of the most valuable territory, has passed out of our hands; belonging now to Mr. R. C. Otis, of Kenosha, Wisconsin, who by his untiring energy has perhaps done more than any other person to introduce the movable frame principle to the public, and who has not yet received any adequate remuneration for the time, money, and energy which, since 1856, he has devoted to this business; but like myself, is a poorer man for all he has done.

L. L. LANGSTROTH.

OXFORD, BUTLER CO., OHIO, June 10, 1869.

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*Mr. Wagner does not seem to have appreciated the value of Dzierzon's discovery of parthenogenesis.

☞Our remark was not meant to embrace *parthenogenesis*—a matter then still controverted by many eminent physiologists. The expression thus happens to be broader than it should have been. At a not much later period, the language would certainly have been so modified as to accord due credit to Dzierzon for his discovery.—ED.

Madame Vicat says, "moths are most ready to attack hives which have swarmed oftener than once; because in them the combs, in which the young queen bees were reared, being empty, serve both for shelter and food to their maggots, which feed only on wax."

Nature has endowed bees with an exquisite sense of smell, for they can scent honey and wax at a great distance.